

## SEQUENCE LISTING

<110> Queensland University of Technology

<120> Protein expression

<130> S80769691

<150> 2003905886

<151> 2003-10-24

<160> 20

<170> PatentIn version 3.2

<210> 1

<211> 50

<212> PRT

<213> Lactobacillus fermentum

<400> 1

Asp Thr Ile Tyr Thr Val Gln Ser Gly Asp Thr Leu Ser Gly Ile Ser  
1 5 10 15

Tyr Lys Phe Ala Lys Asp Asn Ser Met Ile Asn Asp Leu Ala Lys Lys  
20 25 30

Asn Asn Ile Gln Asp Ile Asn Lys Ile Phe Val Gly Gln Lys Leu Ile  
35 40 45

Ile Lys  
50

<210> 2

<211> 81

<212> PRT

<213> Lactobacillus fermentum

<400> 2

Ser Tyr Thr Ser Asn Ala Ser Gly Ser Glu Ala Ala Ala Lys Ala Trp  
1 5 10 15

Ile Ala Gly Arg Glu Ser Gly Gly Asn Tyr Asn Ala Thr Asn Gly Gln  
20 25 30

Tyr Ile Gly Lys Tyr Gln Leu Ala Ala Ser Tyr Leu Gly Gly Asp Tyr  
35 40 45

Ser Pro Ala Asn Gln Glu Arg Val Ala Asp Gln Tyr Val Ala Ser Arg  
50 55 60

Tyr Gly Ser Trp Thr Ala Ala Gln Gln Phe Trp Gln Ala Asn Gly Trp  
65 70 75 80

Tyr

<210> 3  
<211> 44  
<212> PRT  
<213> Lactobacillus fermentum

<400> 3

Ser Asp Gly Glu Ile Gln Glu Tyr Asn Ala Gln Asn Ala Ala Asn Ala  
1 5 10 15

Asn Val Ala Asn Asn Asn Thr Gln Ala Thr Gln Gln Gln Thr Ala Gln  
20 25 30

Ala Gln Pro Gln Gln Ala Gln Ser Gln Ala Asn Gln  
35 40

<210> 4  
<211> 30  
<212> PRT  
<213> Lactobacillus fermentum

<400> 4

Met Ile Ser Lys Lys Asn Phe Ala Lys Val Ser Ala Thr Leu Gly Ala  
1 5 10 15

Val Ala Leu Gly Val Ser Ala Thr Ala Thr Ala Ala Asn Ala  
20 25 30

<210> 5  
<211> 175  
<212> PRT  
<213> Lactobacillus fermentum

<400> 5

Asp Thr Ile Tyr Thr Val Gln Ser Gly Asp Thr Leu Ser Gly Ile Ser  
1 5 10 15

Tyr Lys Phe Ala Lys Asp Asn Ser Met Ile Asn Asp Leu Ala Lys Lys  
20 25 30

Asn Asn Ile Gln Asp Ile Asn Lys Ile Phe Val Gly Gln Lys Leu Ile  
35 40 45

Ile Lys Ser Asp Gly Glu Ile Gln Glu Tyr Asn Ala Gln Asn Ala Ala  
50 55 60

Asn Ala Asn Val Ala Asn Asn Asn Thr Gln Ala Thr Gln Gln Gln Thr  
65 70 75 80

Ala Gln Ala Gln Pro Gln Gln Ala Gln Ser Gln Ala Asn Gln Ser Tyr  
85 90 95

Thr Ser Asn Ala Ser Gly Ser Glu Ala Ala Ala Lys Ala Trp Ile Ala  
100 105 110

Gly Arg Glu Ser Gly Gly Asn Tyr Asn Ala Thr Asn Gly Gln Tyr Ile  
115 120 125

Gly Lys Tyr Gln Leu Ala Ala Ser Tyr Leu Gly Gly Asp Tyr Ser Pro  
130 135 140

Ala Asn Gln Glu Arg Val Ala Asp Gln Tyr Val Ala Ser Arg Tyr Gly  
145 150 155 160

Ser Trp Thr Ala Ala Gln Gln Phe Trp Gln Ala Asn Gly Trp Tyr  
165 170 175

<210> 6

<211> 205

<212> PRT

<213> Lactobacillus fermentum

<400> 6

Met Ile Ser Lys Lys Asn Phe Ala Lys Val Ser Ala Thr Leu Gly Ala  
1 5 10 15

Val Ala Leu Gly Val Ser Ala Thr Ala Thr Ala Ala Asn Ala Asp Thr  
20 25 30

Ile Tyr Thr Val Gln Ser Gly Asp Thr Leu Ser Gly Ile Ser Tyr Lys  
35 40 45

Phe Ala Lys Asp Asn Ser Met Ile Asn Asp Leu Ala Lys Lys Asn Asn  
50 55 60

Ile Gln Asp Ile Asn Lys Ile Phe Val Gly Gln Lys Leu Ile Ile Lys  
65 70 75 80

Ser Asp Gly Glu Ile Gln Glu Tyr Asn Ala Gln Asn Ala Ala Asn Ala  
85 90 95

Asn Val Ala Asn Asn Asn Thr Gln Ala Thr Gln Gln Gln Thr Ala Gln  
100 105 110

Ala Gln Pro Gln Gln Ala Gln Ser Gln Ala Asn Gln Ser Tyr Thr Ser  
115 120 125

Asn Ala Ser Gly Ser Glu Ala Ala Ala Lys Ala Trp Ile Ala Gly Arg  
130 135 140

Glu Ser Gly Gly Asn Tyr Asn Ala Thr Asn Gly Gln Tyr Ile Gly Lys  
145 150 155 160

Tyr Gln Leu Ala Ala Ser Tyr Leu Gly Gly Asp Tyr Ser Pro Ala Asn  
165 170 175

Gln Glu Arg Val Ala Asp Gln Tyr Val Ala Ser Arg Tyr Gly Ser Trp  
180 185 190

Thr Ala Ala Gln Gln Phe Trp Gln Ala Asn Gly Trp Tyr  
195 200 205

<210> 7

<211> 90

<212> DNA

<213> Lactobacillus fermentum

<400> 7

atgatttcta agaaaaactt tgctaaagta tctgctactc ttggtgcagt ggccttaggt 60

gttagtgcaa cggctactgc tgctaattgct 90

<210> 8

<211> 150

<212> DNA  
<213> Lactobacillus fermentum

<400> 8  
gacactatct acaccgtaca aagtgggtgac acacttttcag gtattttctta caaatttgct 60  
aaagacaaca gtatgatcaa tgatcttgct aagaagaaca atattcaaga tattaacaag 120  
atttttgttg gtcaaaagtt aatcatcaag 150

<210> 9  
<211> 132  
<212> DNA  
<213> Lactobacillus fermentum

<400> 9  
agcgatggtg aaattcaaga atacaatgct caaaatgcag ctaatgcaaa tgtagcaaac 60  
aacaatactc aagctacaca acaacaaaact gctcaagcac aacctcaaca agcacaaaagc 120  
caagctaacc aa 132

<210> 10  
<211> 246  
<212> DNA  
<213> Lactobacillus fermentum

<400> 10  
agctacactt caaatgcttc aggttcagaa gctgctgcta aagcttggat tgccggtcgt 60  
gaatcagggtg gtaactacaa cgccacaaac ggtcaatata ttggtaagta ccaattagct 120  
gcatcatacc ttgggtgggtga ctactcacca gctaaccaag aacgcgttgc tgaccaatac 180  
gttgcaagtc gttacgggtc ttggactgct gcccaacaat tctggcaagc aaacgggttg 240  
tactaa 246

<210> 11  
<211> 528  
<212> DNA  
<213> Lactobacillus fermentum

<400> 11  
gacactatct acaccgtaca aagtgggtgac acacttttcag gtattttctta caaatttgct 60  
aaagacaaca gtatgatcaa tgatcttgct aagaagaaca atattcaaga tattaacaag 120  
atttttgttg gtcaaaagtt aatcatcaag agcgatggtg aaattcaaga atacaatgct 180  
caaaatgcag ctaatgcaaa tgtagcaaac aacaatactc aagctacaca acaacaaaact 240  
gctcaagcac aacctcaaca agcacaaaagc caagctaacc aaagctacac ttcaaagtct 300

tcagggttcag aagctgctgc taaagcttgg attgccggtc gtgaatcagg tggtaactac	360
aacgccacaa acggtcaata cattggtaag taccaattag ctgcatcata ccttggtggt	420
gactactcac cagctaacca agaacgcgtt gctgaccaat acgttgcaag tcgttacggt	480
tcttgactg ctgccaaca attctggcaa gcaaacggtt ggtactaa	528

<210> 12  
<211> 618  
<212> DNA  
<213> *Lactobacillus fermentum*

<400> 12 atgatttcta agaaaaactt tgctaaagta tctgctactc ttggtgcagt ggccttaggt	60
gttagtgcaa cggctactgc tgctaattgct gacactatct acaccgtaca aagtggtgac	120
acactttcag gtattttctta caaatttgct aaagacaaca gtatgatcaa tgatcttgct	180
aagaagaaca atattcaaga tattaacaag atttttgttg gtcaaaagtt aatcatcaag	240
agcgatggtg aaattcaaga atacaatgct caaaatgcag ctaatgcaaa tgtagcaaac	300
aacaatactc aagctacaca acaacaaact gctcaagcac aacctcaaca agcacaaagc	360
caagctaacc aaagctacac ttcaaatgct tcagggttcag aagctgctgc taaagcttgg	420
attgccggtc gtgaatcagg tggtaactac aacgccacaa acggtcaata cattggtaag	480
taccaattag ctgcatcata ccttggtggt gactactcac cagctaacca agaacgcgtt	540
gctgaccaat acgttgcaag tcgttacggt tcttgactg ctgccaaca attctggcaa	600
gcaaacggtt ggtactaa	618

<210> 13  
<211> 90  
<212> DNA  
<213> *Lactobacillus fermentum*

<220>  
<221> misc\_feature  
<222> (9)..(9)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (24)..(24)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (30)..(30)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (33)..(33)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (36)..(36)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (39)..(39)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (42)..(42)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (45)..(45)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (48)..(48)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (51)..(51)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (54)..(54)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (57)..(57)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (60)..(60)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (63)..(63)

<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (66)..(66)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (69)..(69)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (72)..(72)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (75)..(75)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (78)..(78)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (81)..(81)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (84)..(84)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (90)..(90)  
<223> any nucleotide

<400> 13  
atgathwsna araaraaytt ygcnaargtn wsnngcnacny tnggngcngt ngcnnytnggn 60  
gtnwsngcna cngcnacngc ngcnaaygcn 90

<210> 14  
<211> 150  
<212> DNA  
<213> Lactobacillus fermentum

<220>  
<221> misc\_feature  
<222> (6)..(6)  
<223> any nucleotide



<220>  
<221> misc\_feature  
<222> (15)..(15)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (18)..(18)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (24)..(24)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (27)..(27)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (33)..(33)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (36)..(36)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (39)..(39)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (42)..(42)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (48)..(48)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (60)..(60)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (72)..(72)  
<223> any nucleotide

<220>  
<221> misc\_feature

<222> (87)..(87)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (90)..(90)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (129)..(129)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (132)..(132)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (141)..(141)  
<223> any nucleotide

<400> 14  
gayacnatht ayacngtnca rwsnggngay acnytnwsng gnathwsnta yaarttygcn 60  
aargayaayw snatgathaa ygayytngcn aaraaraaya ayathcarga yathaayaar 120  
athhtygtng gncaraaryt nathathaar 150

<210> 15  
<211> 132  
<212> DNA  
<213> Lactobacillus fermentum

<220>  
<221> misc\_feature  
<222> (3)..(3)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (9)..(9)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (30)..(30)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (39)..(39)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (42)..(42)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (48)..(48)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (54)..(54)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (57)..(57)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (69)..(69)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (75)..(75)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (78)..(78)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (90)..(90)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (93)..(93)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (99)..(99)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (105)..(105)  
<223> any nucleotide

<220>

<221> misc\_feature  
<222> (114)..(114)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (120)..(120)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (126)..(126)  
<223> any nucleotide

<400> 15  
wsngayggng arathcarga rtayaaygcn caraaygcng cnaaygcnaa ygtngcnaay 60  
  
aayaayacnc argcnacnca rcarcacaracn gncargcnc arccncarca rgncarwsn 120  
  
cargcnaayc ar 132

<210> 16  
<211> 243  
<212> DNA  
<213> Lactobacillus fermentum

<220>  
<221> misc\_feature  
<222> (3)..(3)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (9)..(9)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (12)..(12)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (18)..(18)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (21)..(21)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (24)..(24)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (27)..(27)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (33)..(33)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (36)..(36)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (39)..(39)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (45)..(45)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (54)..(54)  
<223> any nucleotide

<220>  
<221> misc\_feature .  
<222> (57)..(57)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (60)..(60)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (66)..(66)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (69)..(69)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (72)..(72)  
<223> any nucleotide

<220>

<221> misc\_feature  
<222> (84)..(84)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (87)..(87)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (93)..(93)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (105)..(105)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (117)..(117)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (120)..(120)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (123)..(123)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (126)..(126)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (132)..(132)  
<223> any nucleotide

<220>

<221> misc\_feature  
<222> (135)..(135)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (138)..(138)  
<223> any nucleotide

<220>  
<221> misc\_feature

<222> (147)..(147)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (150)..(150)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (153)..(153)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (165)..(165)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (168)..(168)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (171)..(171)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (183)..(183)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (186)..(186)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (189)..(189)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (192)..(192)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (198)..(198)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (201)..(201)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (207)..(207)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (210)..(210)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (213)..(213)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (231)..(231)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (237)..(237)  
<223> any nucleotide

<400> 16  
wsntayacnw snaaygcnws nggnwsngar gcngcngcna argcntggat hgcngggnmgn 60  
garwsnggng gnaaytayaa ygcnacnaay ggncartaya thggnaarta ycarytngcn 120  
gcnwsntayy tnggnggnga ytaywsnccn gcnaaycarg armgngtngc ngaycartay 180  
gtngcnwsnm gntayggnws ntggacngcn gncarcart tytggcargc naayggntgg 240  
tay 243

<210> 17  
<211> 525  
<212> DNA  
<213> Lactobacillus fermentum

<220>  
<221> misc\_feature  
<222> (6)..(6)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (15)..(15)  
<223> any nucleotide

<220>  
<221> misc\_feature



<222> (18)..(18)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (24)..(24)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (27)..(27)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (33)..(33)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (36)..(36)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (39)..(39)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (42)..(42)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (48)..(48)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (60)..(60)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (72)..(72)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (87)..(87)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (90)..(90)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (129)..(129)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (132)..(132)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (141)..(141)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (153)..(153)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (159)..(159)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (180)..(180)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (189)..(189)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (192)..(192)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (198)..(198)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (204)..(204)  
  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (207)..(207)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (219)..(219)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (225)..(225)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (228)..(228)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (240)..(240)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (243)..(243)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (249)..(249)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (255)..(255)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (264)..(264)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (270)..(270)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (276)..(276)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (285)..(285)  
<223> any nucleotide

<220>  
<221> misc\_feature

<222> (291)..(291)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (294)..(294)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (300)..(300)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (303)..(303)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (306)..(306)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (309)..(309)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (315)..(315)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (318)..(318)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (321)..(321)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (327)..(327)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (336)..(336)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (339)..(339)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (342)..(342)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (348)..(348)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (351)..(351)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (354)..(354)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (366)..(366)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (369)..(369)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (375)..(375)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (387)..(387)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (399)..(399)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (402)..(402)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (405)..(405)  
<223> any nucleotide

<220>

<221> misc\_feature  
<222> (408)..(408)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (414)..(414)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (417)..(417)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (420)..(420)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (429)..(429)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (432)..(432)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (435)..(435)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (447)..(447)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (450)..(450)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (453)..(453)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (465)..(465)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (468)..(468)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (471)..(471)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (474)..(474)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (480)..(480)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (483)..(483)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (489)..(489)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (492)..(492)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (495)..(495)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (513)..(513)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (519)..(519)

<223> any nucleotide

<400> 17

gayacnatht ayacngtnca rwsnggngay acnytnwsng gnathwsnta yaarttygcn 60

aargayaayw snatgathaa ygayytngcn aaraaraaya ayathcarga yathaayaar 120

athttygtng gncaraaryt nathathaar wsngayggng arathcarga rtayaaygcn 180

caraaygcng cnaaygcnaa ygtngcnaay aayaayacnc argcnacnca rcarcacaracn 240

gncargcnc arccncarca rgncarwsn cargcnaayc arwsntayac nwsnaaygcn	300
wsnggnwsng argcngcngc naargcntgg athgcngggnm gngarwsngg nggnaaytay	360
aaygcnacna ayggncarta yathggnaar taycarytng cngcnwsnta yytnggnggn	420
gaytaywsnc cngcnaayca rgarmgngtn gcngaycart aygtngcnws nmngntayggn	480
wsntggacng cngcncarca rttytggcar gcnaayggnt ggtay	525

<210> 18  
<211> 615  
<212> DNA  
<213> Lactobacillus fermentum

<220>  
<221> misc\_feature  
<222> (9)..(9)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (24)..(24)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (30)..(30)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (33)..(33)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (36)..(36)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (39)..(39)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (42)..(42)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (45)..(45)  
<223> any nucleotide



<220>  
<221> misc\_feature  
<222> (48)..(48)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (51)..(51)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (54)..(54)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (57)..(57)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (60)..(60)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (63)..(63)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (66)..(66)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (69)..(69)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (72)..(72)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (75)..(75)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (78)..(78)  
<223> any nucleotide

<220>

<221> misc\_feature  
<222> (81)..(81)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (84)..(84)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (90)..(90)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (96)..(96)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (105)..(105)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (108)..(108)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (114)..(114)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (117)..(117)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (123)..(123)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (126)..(126)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (129)..(129)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (132)..(132)

<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (138)..(138)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (150)..(150)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (162)..(162)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (177)..(177)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (180)..(180)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (219)..(219)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (222)..(222)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (231)..(231)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (243)..(243)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (249)..(249)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (270)..(270)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (279)..(279)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (282)..(282)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (288)..(288)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (294)..(294)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (297)..(297)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (309)..(309)  
<223> any nucleotide

<220>

<221> misc\_feature  
<222> (315)..(315)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (318)..(318)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (330)..(330)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (333)..(333)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (339)..(339)  
<223> any nucleotide

<220>

<221> misc\_feature  
<222> (345)..(345)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (354)..(354)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (360)..(360)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (366)..(366)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (375)..(375)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (381)..(381)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (384)..(384)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (390)..(390)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (393)..(393)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (396)..(396)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (399)..(399)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (405)..(405)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (408)..(408)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (411)..(411)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (417)..(417)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (426)..(426)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (429)..(429)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (432)..(432)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (438)..(438)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (441)..(441)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (444)..(444)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (456)..(456)

<223> any nucleotide

<220>

<221> misc\_feature

<222> (459)..(459)

<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (465)..(465)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (477)..(477)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (489)..(489)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (492)..(492)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (495)..(495)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (498)..(498)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (504)..(504)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (507)..(507)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (510)..(510)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (519)..(519)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (522)..(522)  
<223> any nucleotide

<220>  
<221> misc\_feature

<222> (525)..(525)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (537)..(537)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (540)..(540)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (543)..(543)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (555)..(555)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (558)..(558)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (561)..(561)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (564)..(564)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (570)..(570)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (573)..(573)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (579)..(579)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (582)..(582)  
<223> any nucleotide



<220>  
<221> misc\_feature  
<222> (585)..(585)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (603)..(603)  
<223> any nucleotide

<220>  
<221> misc\_feature  
<222> (609)..(609)  
<223> any nucleotide

<400> 18  
atgathwsna araaraaytt ygcnaargtn wsngcnacny tnggngcngt ngcnytnngn 60  
gtnwsngcna cngcnacngc ngcnaaygcn gayacnatht ayacngtnca rwsnggngay 120  
acnytnwsng gnathwsnta yaarttygcn aargayaayw snatgathaa ygayytngcn 180  
aaraaraaya ayathcarga yathaayaar athttygtng gncaraaryt nathathaar 240  
wsngayggng arathcarga rtayaaygcn caraaygcng cnaaygcnaa ygtngcnaay 300  
aayaayacnc argcnacnca rcarcaracn gncargcnc arccncarca rgncarwsn 360  
cargcnaayc arwsntayac nwsnaaygcn wsnggnwsng argcngcngc naargcntgg 420  
athgcngngm gngarwsngg nggnaaytay aaygcnacna ayggncarta yathggnaar 480  
  
taycarytng cngcnwsnta yytnggnggn gaytaywsnc cngcnaayca rgarmngn 540  
gcnaycart aygtngcnws nmngntayggn wsntggacng cngcncarca rttytggcar 600  
gcnaayggnt ggtay 615

<210> 19  
<211> 310  
<212> DNA  
<213> Lactobacillus fermentum

<400> 19  
taaagatagt tataaacgga aaataaaggg cggttttggg gcaaatatga aatttttgcg 60  
aagaaatcag ctttttttat ttattttttt ataatcatc tgtaaaagtt atgcaaaccg 120  
aaaacgcaac ccgcacaagg aattagccga ttatgactat aatattttta aagctatatt 180  
acaaaaagca aacggagagt agtaaataga aatgggtgctg ttacagcttt gtaatattaa 240  
gagtgtagta tatagggtgt tgaaacggaa aagataattt gctaaataat aaaggatgg 300

tattttaattt

310

<210> 20

<211> 150

<212> DNA

<213> Lactobacillus fermentum

<400> 20

aataaataag attaataaat tttattgcga gactgatgga atattatttc cttctgtctc 60

gcttttttgg gctaataatgt tataatggta gtacttctta tggggatggt tatggattcg 120

acaggtatag gtcgagtttc aactgcgttt 150